

45. An isolated polypeptide selected from the group consisting of:

- a) a polypeptide comprising an amino acid sequence of SEQ ID NO:1,
  - b) a polypeptide comprising a naturally occurring amino acid sequence at least 90% identical to an amino acid sequence of SEQ ID NO:1,
  - c) a biologically active fragment of a polypeptide having an amino acid sequence of SEQ ID NO:1, and
  - d) an immunogenic fragment of a polypeptide having an amino acid sequence of SEQ ID NO:1.
- 

46. (Once Amended) An isolated antibody which specifically binds to a polypeptide comprising a polypeptide selected from the group consisting of:

- a) a polypeptide having the amino acid sequence of SEQ ID NO:1,
- b) a polypeptide having a naturally occurring amino acid sequence at least 90% identical to the amino acid sequence of SEQ ID NO:1, wherein the polypeptide has nucleotide pyrophosphohydrolase activity,
- c) a fragment of a polypeptide having the amino acid sequence of SEQ ID NO:1, wherein the fragment has nucleotide pyrophosphohydrolase activity, and
- d) an immunogenic fragment of a polypeptide having the amino acid sequence of SEQ ID NO:1.

47. (Once Amended) A method for a diagnostic test for a condition or disease associated with the expression of human nucleotide pyrophosphohydrolase-2 in a biological sample, the method comprising:

- a) combining the biological sample with an antibody of claim 46, under conditions suitable for the antibody to bind the polypeptide and form an antibody:polypeptide complex, and
  - b) detecting the complex, wherein the presence of the complex correlates with the presence of the polypeptide in the biological sample.
-

48. The antibody of claim 46, wherein the antibody is:

- a) a chimeric antibody,
- b) a single chain antibody,
- c) a Fab fragment,
- d) a F(ab')<sub>2</sub> fragment, or
- e) a humanized antibody.

49. A composition comprising an antibody of claim 46 and an acceptable excipient.

---

D3

51. (Once Amended) A composition of claim 49, further comprising a label.

---

53. A method of preparing a polyclonal antibody with the specificity of the antibody of claim 46, the method comprising:

- a) immunizing an animal with a polypeptide having an amino acid sequence of SEQ ID NO:1, or an immunogenic fragment thereof, under conditions to elicit an antibody response,
- b) isolating antibodies from said animal, and
- c) screening the isolated antibodies with the polypeptide, thereby identifying a polyclonal antibody which binds specifically to a polypeptide having an amino acid sequence of SEQ ID NO:1.

---

D4

54. (Once Amended) A polyclonal antibody produced by a method of claim 53.

---

55. A composition comprising the antibody of claim 54 and a suitable carrier.

56. A method of making a monoclonal antibody with the specificity of the antibody of claim 46, the method comprising:

- a) immunizing an animal with a polypeptide having an amino acid sequence of SEQ ID NO:1, or an immunogenic fragment thereof, under conditions to elicit an antibody response,
- b) isolating antibody producing cells from the animal,
- c) fusing the antibody producing cells with immortalized cells to form monoclonal antibody-

producing hybridoma cells,

d) culturing the hybridoma cells, and

e) isolating from the culture monoclonal antibody which binds specifically to a polypeptide having an amino acid sequence of SEQ ID NO:1.

57. A monoclonal antibody produced by a method of claim 56.

58. A composition comprising the antibody of claim 57 and a suitable carrier.

59. The antibody of claim 46, wherein the antibody is produced by screening a Fab expression library.

60. The antibody of claim 46, wherein the antibody is produced by screening a recombinant immunoglobulin library.

61. A method of detecting a polypeptide having an amino acid sequence of SEQ ID NO:1 in a sample, the method comprising:

a) incubating the antibody of claim 46 with a sample under conditions to allow specific binding of the antibody and the polypeptide, and

b) detecting specific binding, wherein specific binding indicates the presence of a polypeptide having an amino acid sequence of SEQ ID NO:1 in the sample.

62. A method of purifying a polypeptide having an amino acid sequence of SEQ ID NO:1 from a sample, the method comprising:

a) incubating the antibody of claim 46 with a sample under conditions to allow specific binding of the antibody and the polypeptide, and

b) separating the antibody from the sample and obtaining the purified polypeptide having an amino acid sequence of SEQ ID NO:1.

65. (New) An isolated antibody which specifically binds to a polypeptide comprising the amino acid sequence of SEQ ID NO:1.

D5 66. (New) An isolated antibody of claim 46, which specifically binds to a polypeptide comprising a naturally occurring amino acid sequence at least 90% identical to the amino acid sequence of SEQ ID NO:1, wherein the polypeptide has nucleotide pyrophosphohydrolase activity.

67. (New) An isolated antibody of claim 46, which specifically binds to a fragment of a polypeptide, wherein the polypeptide consists of the amino acid sequence of SEQ ID NO:1, and wherein the fragment has nucleotide pyrophosphohydrolase activity.

68. (New) An isolated antibody of claim 46, which specifically binds to an immunogenic fragment of a polypeptide, wherein the polypeptide consists of the amino acid sequence of SEQ ID NO:1.